



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,257	04/27/2001	Karin Kellner	CIBT-P01-099	8923

28120 7590 06/22/2005

FISH & NEAVE IP GROUP
ROPES & GRAY LLP
ONE INTERNATIONAL PLACE
BOSTON, MA 02110-2624

EXAMINER

BRANNOCK, MICHAEL T

ART UNIT	PAPER NUMBER
----------	--------------

1646

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/844,257

Applicant(s)

KELLNER ET AL.

Examiner

Michael Brannock

Art Unit

1646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 1646

DETAILED ACTION

Status of Application: Claims and Amendments

Applicant is notified that the amendments put forth on 4/6/05, have been entered in full.

Response to Amendment

Maintained Rejection:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent No: 5844079 to Ingham et al. in view of U.S. Patent No: 6468978 to Esswein et al., filed April 28, 1999, as set forth previously and reiterated below.

Ingham et al. disclose a method of making a cartilaginous prosthesis comprising seeding a polymeric matrix of articular chondrocytes and contacting the seeded construct with a naturally occurring hedgehog polypeptide, see col 50, particularly lines 40-68. Wherein the polymer matrix is polyglycolid acid (see col 50, L55); and a wherein the naturally occurring hedgehog polypeptide is hydrophobically modified, e.g. with a lipid moiety (see col 28, line 29). Ingham et al., however, do not explicitly teach that the concentration of the hedgehog protein be at least 500 pg/mL as specifically recited in claims 6 and 7. However, Ingham et al. does teach that the 19kDa N-terminal fragment becomes active at a concentration of about 5 to 50 pM (~100 to

Art Unit: 1646

1000 pg/mL), see col 106 Example 9. Thus, it would simply be a matter of routine optimization of operating parameters to use a concentration of at least 500 pg/mL (e.g. 1000 pg/mL) based on what was known of the activity of hedgehog proteins as taught by Ingham et al. when practicing the invention of Ingham et al., the motivation to do so is provided by Ingham who teach that hedgehog protein is active at a concentration of 1000 pg/mL.

Ingham et al. do not disclose that the hedgehog protein should be dipalmitoylated. Esswein et al. teach that dipalmitoylated hedgehog proteins exhibit much higher biological activity than non-modified hedgehog proteins (col 13, lines 31-37), and that such can be used advantageously to induce or stimulate chondrocytes (col 9, line 5).

Therefore, one of ordinary skill in the art, at the time the invention was made, and with reasonable expectation of success, would be motivated to use dipalmitoylated hedgehog proteins as taught by Esswein et al when practicing the method of making a cartilaginous prosthesis as taught by Ingham et al., the motivation to do so being provided by Esswein et al who teach that dipalmitoylated hedgehog proteins exhibit much higher biological activity than non-modified hedgehog proteins, and that such can be used advantageously to induce or stimulate chondrocytes.

Applicant argues that one of ordinary skill in the art would not be motivated to use a concentration of hedgehog that is 2-3 orders of magnitude more than what is taught in the Ingham and Esswein patents, and that because Esswein teach that the dipalmitoylated form is much more potent than that known to Ingham, Esswein actually teach away from using a higher concentration because the potency is already believed to be high for the dipalmitoylated form. These arguments have been fully considered but not deemed persuasive. Regarding the

Art Unit: 1646

particular concentrations, it is old and well established in the art of Biology that assays are performed to determine the optimal concentrations of active components. Assays are routinely performed wherein the concentrations of the tested protein differ by several orders of magnitude, see figure 1 of Esswein for example. One of ordinary skill in the art would routinely assay for the optimal concentration of hedgehog to use in a particular application, and would thus arrive at the claimed concentrations as a matter of routine optimization of operating parameters, absent evidence to the contrary.

Art Unit: 1646

Conclusion

No claims are allowable.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX months.

Please note the new central fax number for official correspondence below:

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Brannock, Ph.D., whose telephone number is (571) 272-0869. The examiner can normally be reached on Mondays through Fridays from 10:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Caputa, Ph.D., can be reached at (571) 272-0829. Official papers filed by fax should be directed to 571-273-8300.

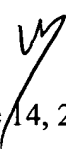
Art Unit: 1646

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Elizabeth C. Kemmerer

**ELIZABETH KEMMERER
PRIMARY EXAMINER**

MB


June 14, 2005